

REMARKS

Claims 1-24 are pending in this application. Claims 1-24 are rejected.

Responsive to the rejection of claims 1-24 under 35 U.S.C. § 103(a) as being obvious by U.S. Patent No. 5,759,353 (Jaakkola et al.) in view of European Patent Application Publication No. 0 627 523 (Heikki et al.) and U.S. Patent No. 5,129,988 (Farrington, Jr.), Applicants have amended claim 1 and submit that claims 1-24 are now in condition for allowance.

Jaakkola et al. '353 disclose a gap former (Fig. 1) in which a pulp suspension jet J is fed out of the discharge opening of headbox 29 into forming gap G defined between a loop of upper wire 10 in a region as it runs about a forming roll 11 having a hollow-face 11' and a straight run of the lower wire 20 after a breast roll 21 (column 5, lines 1-8). After forming gap G, an upwardly inclined twin-wire zone starts, in which there is a combination of spring blade wire loading unit 50 (also referred to hereinafter as a spring blade unit) and forming rib unit 30 (column 5, lines 12-15). The interior space in forming shoe 22 may be connected to a vacuum which is effective in the gap spaces in the ribbed deck 22a and the forming shoe constitutes part of forming rib unit 30 (column 5, lines 40-44). Spring blades 51 of the loading unit 50 operate in the middle or central areas of the gaps between ribs 22a of the forming shoe 22 and load the inner face of the upper wire 10 substantially across its entire width (column 5, lines 59-62). After the forming gap G (Fig. 7), the twin-wire zone starts, which zone is curved on the hollow-faced 11' forming roll 11 over the sector a, whose magnitude is typically from about 5° to about 45°.

Heikki et al. '523 disclose a former (Fig. 1) including a loop of covering wire 10 and a loop of carrying wire 20 (page 3, line 48). Between the lines B-C, wires 10 and 20 form a twin-wire zone, in which water is removed from web W through both of wires 10, 20 (page 3, lines 48-50). Forming gap G, which becomes narrower as wedge-shaped, is defined between covering

wire 10, which is guided by forming roll 11 or corresponding breast roll 11A, and carrying wire 20, which is guided by forming roll 21 or the corresponding breast roll 21A (page 3, lines 51-53). Forming gap G is determined by first open-faced 11';21' forming roll 11;21 and by the smooth-faced 11";21" breast roll 11A;21A. (page 3, lines 56-57). Thus, what is concerned is a so-called "kissing forming roll" (page 4, line 6). Twin-wire zone, after forming gap G, there is a curved forming show 12;22, which has a ribbed deck 12a;22a with a large curve radius R_1 (page 4, lines 10-11). Dewatering unit 40 and a press and support unit 60 operating one opposite to the other, wires 10,20 being pressed against one another by way of the latter unit so as to remove water out of web W placed between the wires (page 4, lines 12-14). MB unit 50 or units is/are followed by suction box 29, which is provided with a ribbed deck and which is placed inside the loop of carrying wire 20 (page 4, lines 17-18). Suction box 29 is followed by a large-diameter D_2 second forming roll 23, which is placed inside carrying wire 20, which is a suction roll, and in which there are two successive suction zones 23a and 23b, according to Figs. 1 to 4, and one suction zone 23a, according to Fig. 5 (page 4, lines 18-21). Diameters D_1 of rolls 11 and 21A are preferably substantially equal in comparison with one another, being of an order of $D_1 \approx 0.5 \dots 1.5$ m, preferably $D_1 \approx 0.7 \dots 1.0$ m (page 4, lines 35-36). Unit 60 includes a set of ribs 70, which consists of ceramic loading ribs 71,72, which are interconnected pairs by means of support structures 73 (page 5, lines 49-50). Ribs 71,72 and also their back-up ribs 81, extend in the transverse direction across the entire width of web W and of wires 10,20 (page 5, lines 50-51). The set of ribs 70 is loaded by way of pressures p_k passed into loading hoses 75 against the stationary frame constructions 74 (page 5, lines 51-52). Water is removed on the former roll to a considerably lower extent than in the "Speed-Former", which contributes to an improved retention (page 6, lines 23-24). The consistencies, i.e. dry solids contents of the web that is being

formed, which are indicated in Fig. 3, are preferably as follows: consistency in the headbox \approx 0.5...1.7% (page 6, lines 23-25).

Farrington, Jr. '988 discloses a headbox (Fig. 3) including upper headbox wall 10, lower headbox wall 12, and extended dividers 15, 16, and 17 (column 4, lines 9-12). Flexible headbox lip extensions 31 and 32 are coterminous with the headbox dividers (column 4, lines 12-14). The headbox lip extensions can be attached to the headbox by any suitable elements, but in the embodiment shown they abut the headbox lips and are supported by an upper support 33 and a lower support 34 (column 4, lines 14-18). This embodiment has versatility for use in retrofitting existing headboxes, and its thinner profile, which enables placement of the headbox closer to the forming zone (column 4, lines 18-24).

In contrast, claim 1, as amended, recites in part:

at a stock consistency of between 0.4% and 2.0% thereby providing an initial dewatering volume less than 30% on said rotating forming roll . . . said central area including a plurality of dewatering elements and a plurality of forming elements, said plurality of dewatering elements including said forming suction box, and said plurality of forming elements including said forming strips . . .

(Emphasis added.) Applicants submit that such an invention is neither taught, disclosed nor suggested by Jaakkola et al. '353, Heikki et al. '523 and Farrington, Jr. '988 or any of the other cited references, alone or in combination, and has distinct advantages thereover.

Jaakkola et al. '353 disclose spring blades of the loading unit that operate in the middle or central areas of the gaps between the ribs of the forming shoe. The "spring blades" of Jaakkola et al. '353 do not read on the forming strips of the present invention. For example, the "spring blades" of Jaakkola et al. '353 are resilient and also extend in the direction of web travel. In contrast, the forming strips of the present invention are non-resilient, as required by their orientation, unlike the "spring blades" of Jaakkola et al. '353. In further contrast, the forming

strips of the present invention extend opposite the direction of web travel unlike the “spring blades” of Jaakkola et al. ‘353. Heikki et al. ‘523 disclose that water is removed on the former roll to a considerably lower extent than in the “Speed-Former”. However, none of the cited references discloses or suggests an initial dewatering volume less than 30%. Greater than expected results are evidence of nonobviousness (MPEP 716.02(a) and *In re Corkill*, 711 F.2d 1496, 226 USPQ 1005 (Fed. Cir. 1985)). The Examiner has found partial examples of some of the claimed elements of the present invention, however, the improved performance of the present invention as claimed, which provides greater than expected results, renders the present invention nonobvious as provided by MPEP 716.02(a).

An advantage of the present invention is an increase in the dewatering capacity of the twin wire former while maintaining good web qualities.

For all of the foregoing reasons, Applicants submit that claim 1, and claims 2-24 depending therefrom, are now in condition for allowance, which is hereby respectfully requested.

For the foregoing reasons, Applicants submit that no combination of the cited references teaches, discloses or suggests the subject matter of the amended claims. The pending claims are therefore in condition for allowance, and Applicants respectfully request withdrawal of all rejections and allowance of the claims.

In the event Applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefor and authorizes that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.



PATENT

Should any question concerning any of the foregoing arise, the Examiner is invited to telephone the undersigned at (260) 897-3400.

Respectfully submitted,

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